GLOBAL AIR NAVIGATION SYSTEMS

Recommendations from the 1997 Global Air Navigation Systems Study are divided into the following topics:

USAF ROLE IN FUTURE AEROSPACE ARCHITECTURE DESIGN

- Restructure the USAF interaction with the Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO) to improve both high-level and technical interaction
- Strongly oppose airspace and ATC regulations based on specific hardware or software
- Propose and support architectures and procedures that enable routine flight of uninhabited aerial vehicles (UAVs) in controlled airspace

NAVIGATION

Define navigation requirements in terms of ground rather than air data quantities

Resist airframe and sensor modifications for Required Navigation Performance (RNP) as unnecessary and costly

Certify DOD GPS/INS systems to meet RNP-1 standards based on ground track

Survey DOD aircraft control systems and flight management systems to determine their limitations

Develop a precision ground proximity warning (GPW) system for DOD aircraft

COMMUNICATIONS

Do not commit to civil aviation SATCOM until next-generation services are well defined

Collaborate with next-generation SATCOM suppliers to ensure low-cost, reliable aviation services with emphasis on military capability

Develop a high-frequency datalink (HFDL) for interim use in transoceanic airspace using existing DOD high-frequency (HF) equipment if possible

Design HFDL for dual use in VHF datalinks

Participate in the development of datalink standards

Develop civil ATC gateways for military datalinks using commercial information technology methods

Include the ATC network as part of the DOD worldwide command and control (C2) system

Integrate civil aviation, commercial aviation, and military networks

Continue development of multimode radios and develop aviation versions of software-programmable radios

SURVEILLANCE

Develop and promote the worldwide ATC (Air Traffic Control) network concept to satisfy the communication and Autonomous Dependent Surveillance (ADS) needs of DOD aircraft

Interface tactical datalinks with ATC through offboard gateways rather than install independent civil datalink equipment in all aircraft

Support early adoption of ADS-A and ADS-B for surveillance and collision avoidance

Generate guidelines for installation of the Terminal Collision Avoidance System (TCAS) in a limited subset of military aircraft as safety considerations dictate

Through example and demonstration, develop methods of reducing cultural barriers to acceptance of new technology and techniques

GLOBAL POSITIONING SYSTEM

Establish the USAF as the technical leader in establishing future enhancements for GPS

Develop en route and approach capabilities based on military GPS signals with civil requirements as a subset of military capability

Consider augmentation of the GPS constellation with six additional satellites

Negotiate at high levels for GPS to be accepted as the sole means of navigation and approach

Support GPS accuracy improvements

Develop a military integrity notification capability

Survey the future utility of GPS equipment installed under the GPS 2000 initiative

Plan for early termination of Selective Availability

APPROACH AND LANDING

Adopt GPS/INS as the primary USAF approach system for both modern and austere airports

Collaborate with airlines on development of a Local Area Augmentation System (LAAS)

Enlist airline support for opposing the adoption of microwave landing systems (MLSs)

Develop a bad-weather-approach design capability